

Abstract

[0033] The present invention provides a compliant foil thrust bearing that will remain parallel and compliant to a thrust runner operatively coupled to a rotating shaft of high speed rotating machinery over a broad range of size and operating environments and loads. The thrust bearing comprises a thrust bearing plate including a plurality of decoupled bearing segments, and a spring plate operatively engaging the thrust bearing plate, the spring plate including a plurality of decoupled spring plate segments. The respective decoupled segments are defined in part by a plurality of line of weakness, such as slits, slots, perforations, etched lines and grooves, circumaxially dispersed about the thrust bearing plate and the spring plate. A plurality of compliant foils are disposed on the surface of the thrust bearing plate, and a plurality of springs are disposed on the surface of the spring plate to improve the compliancy of the thrust bearing.